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EXAMINER				
KAMPURIA, SHARAD K				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/815,717

**Applicant(s)**

PERIYALWAR ET AL.

**Examiner**

SHARAD RAMPURIA

**Art Unit**

2617

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-17, 19-28 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-17, 19-28 and 31-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the **first** paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9, 25 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the **written description requirement**. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 9, the amended limitation, “dormant, standby and active.” The applicant's specification fails to support such limitation.

Regarding claim 25, the amended limitation, “at least one network element.” The applicant's specification fails to support such limitation.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-6, 8, 10-17, 19-20, 25-28, 31-32 & 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Grube; Gary W. et al.** [US 5666661 A] in view of **Ma; Ming et al.** [US 5995500 A].

As per claim 2, **Grube** teaches:

A mobile station adapted to participate in wireless PMP (point-to-point) communications by communicating directly with a cellular base station using cellular communications signals transmitted on a cellular spectral resource, (Col.3; 1-17, 29-38, Abstract)

the mobile station being further adapted to participate in wireless P2P (peer-to-peer) communications by communicating directly with another mobile station using signals in form similar to the cellular communications signals and using said cellular spectral resource, wherein the cellular communications signals are CDMA (code division multiple access), signals or OFDM (Orthogonal frequency division multiplexing) signals. (Col.3; 53-Col.4; 17)

**Grube** doesn't teach specifically, wherein said cellular spectral resource comprises a downlink PMP band, and an uplink PMP band, wherein the mobile station is adapted to participate in wireless PMP (point to multi-point) communications using the downlink PMP band for receiving and using the uplink PMP band for transmitting, the mobile station being further adapted to participate in wireless P2P (peer-to-peer) communications using the PMP uplink band for both transmitting and receiving in a TDD (time division duplex) manner. However, **Ma** teaches in an analogous art, that wherein said cellular spectral resource comprises a downlink PMP band, and an uplink PMP band, wherein the mobile station is adapted to participate in wireless PMP (point to multi-point) communications using the downlink PMP band for receiving and using the uplink PMP band for transmitting, (e.g. Col.9; 46-Col.10; 2) the mobile station being further adapted to participate in wireless P2P (peer-to-peer) communications using the PMP uplink band for both transmitting and receiving in a TDD (time division duplex) manner. (e.g. Col.9; 23-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to including wherein said cellular spectral resource comprises a downlink PMP band, and an uplink PMP band, wherein the mobile station is adapted to participate in wireless PMP (point to multi-point) communications using the downlink PMP band for receiving and using the uplink PMP band for transmitting, the mobile station being further adapted to participate in wireless P2P (peer-to-peer) communications using the PMP uplink band for both transmitting and receiving in a TDD (time division duplex) manner in order to provide a method and apparatus for direct communication between mobile stations.

As per claims 3-6, **Grube** teaches a mobile station according to claim 2 comprising: a transmitter for transmitting PMP communications and P2P communications on the uplink PMP band; a first receiver for receiving PMP communications on the downlink PMP band; a second receiver for receiving P2P communications on the uplink PMP band. (e.g. using within a cellular system; Col.3; 53-Col.4; 17)

As per claims 8, 10-12, 15-16, Grube teaches:

A mobile station according to claim 1 further adapted to maintain linked state transitions between states for PMP communications and at least one state for P2P communications. (e.g. using within a cellular system; Col.3; 53-Col.4; 17)

As per claim 13, Grube teaches:

A mobile station according to claim 12 adapted to coordinate the setup of a P2P communications link with another mobile station by: in response to a user selection, transmitting an P2P request to the another mobile station on a P2P access channel; receiving an acknowledgement from the another mobile station. (e.g. Col.3; 53-Col.4; 17)

As per claim 14, Grube teaches all the particulars of the claim except transmit a frame format which includes a time slot for PMP communications and a time slot for P2P communications. However, Ma teaches in an analogous art, that a mobile station according to claim 1 adapted to transmit a frame format which includes a time slot for PMP communications and a time slot for P2P communications. (TDD; Col.9; 23-37)

As per claims 17, 32-34, Grube teaches:

A mobile station according to claims 16, 31, adapted to: receive a direction from the network to enter P2P communications with another mobile station; in response to said direction, coordinate set up of P2P communications with the another mobile station; while in P2P communications, listen to PMP transmissions from the network for maintenance purposes. (e.g. Col.3; 53-Col.4; 17)

As per claims 19-20, Grube teaches all the particulars of the claim except to perform signaling to set up P2P communications with another mobile station using an access channel having a defined long code mask announced by a network controlling said spectral resource. However, Ma teaches in an analogous art, that a mobile station according to claim 1 further adapted to perform signaling to set up P2P communications with another mobile station using an access channel having a defined long code mask announced by a network controlling said spectral resource. (Col.9; 23-37)

*Claims 25-26, 31*, are the **system, method** claims corresponding to **apparatus** claim 1 respectively, and rejected under the same rational set forth in connection with the rejection of claim 1 respectively, above.

As per claim 27, Grube teaches:

A cellular network according to claim 26 wherein the at least one network element comprises a base station transceiver which determines a pair of mobile stations which are communicating with each other are sufficiently close together for P2P communications due to their being located in a coverage area serviced by the base station transceiver. (e.g. Col.3; 1-17, 29-38)

As per claim 28, Grube teaches:

A cellular network according to claim 26 wherein the at least one network element comprises a base station controller and a plurality of base stations which determine a pair of mobile stations which are communicating with each other are sufficiently close together for P2P communications due to their being located in a coverage area of base stations serviced by the base station controller. (e.g. Col.3; 1-17, 29-38)

Claims 7, 21-23 rejected under 35 U.S.C. 103(a) as being unpatentable over **Grube & Ma** further in view of **Kuffner**; Stephen [US 6954446 B2].

As per claim 7, the above combination teaches all the particulars of the claim except the receiver is a software defined receiver. However, Kuffner teaches in an analogous art, that a mobile station according to claim 5 wherein said receiver is a software defined receiver. (e.g. SDR; Col.3; 34-41) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to including receiver is a software defined receiver in order to provide a multiple mode transmitter, receiver or transceiver which can be flexibly deployed.



As per claims 21-23 the above combination teaches all the particulars of the claim except at least one of rate control and power control for P2P communications in cooperation with the other mobile station. However, Kuffner teaches in an analogous art, that a mobile station according to claim 1 further adapted to perform at least one of rate control and power control for P2P communications in cooperation with the other mobile station. (e.g. power; Col.4; 13-18)

Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over **Grube & Ma** further in view of **Raffel** et al. [US 20030050090].

As per claim 9, the above combination teaches all the particulars of the claim except the states for PMP communications comprise dormant, standby and active. However, Raffel teaches in an analogous art, that a mobile station according to claim 8 wherein the states for PMP communications comprise dormant, standby and active, and wherein P2P communications are permitted when the mobile station is in one of the PMP states dormant and standby. (Pg.8; 0065) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to including the states for PMP communications comprise dormant, standby and active in order to provide a multiple mode for a mobile device.

Claim 24 rejected under 35 U.S.C. 103(a) as being unpatentable over **Grube & Ma** further in view of **Caldwell**; Richard J. et al. (US 7167454 B2).

As per claim 24, the above combination teaches all the particulars of the claim except a mobile station according to claim 2 further comprising at least one steerable antenna which is steered for use in P2P communication or PMP communications. However, Caldwell teaches in an analogous art, that a mobile station according to claim 1 further comprising at least one steerable antenna which is steered for use in P2P communication or PMP communications. (Col.3; 12-22)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to including a mobile station according to claim 2 further comprising at least one steerable antenna which is steered for use in P2P communication or PMP communications in order to provide a radio communication system comprising a plurality of stations which may communicate with one another.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 2-17, 19-28, 31-34 has been fully considered but is moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharad Rampuria whose telephone number is (571) 272-7870. The examiner can normally be reached on M-F. (8:30-5 EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000 or

[EBC@uspto.gov](mailto:EBC@uspto.gov).

/Sharad Rampuria/  
Primary Examiner  
Art Unit 2617